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I.S. EN ISO 204:2009

Metallic materials - Uniaxial creep testing in tension - Method of test (ISO 204:2009)

I.S. EN ISO 204:2009

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NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie Price Code: O
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Metallic materials - Uniaxial creep testing in tension - Method of test (ISO 204:2009)

Matériaux métalliques - Essai de fluage uniaxial en traction
- Méthode d'essai (ISO 204:2009)

Metallische Werkstoffe - Einachsiger Zeitstandversuch
unter Zugbeanspruchung - Prüfverfahren (ISO 204:2009)

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Foreword

This document (EN ISO 204:2009) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" in collaboration with Technical Committee ECISS/TC 1 "Steel - Mechanical testing" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

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**INTERNATIONAL
STANDARD**

**ISO
204**

Second edition
2009-06-15

**Metallic materials — Uniaxial creep
testing in tension — Method of test**

*Matériaux métalliques — Essai de fluage uniaxial en traction —
Méthode d'essai*



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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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ISO 204 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 1, *Uniaxial testing*.

This second edition cancels and replaces the first edition (ISO 204:1997), which has been technically revised.

Introduction

This International Standard is an extensive revision of the first edition of ISO 204:1997 and incorporates many recommendations developed through the European Creep Collaborative Committee (ECCC).

New annexes have been added concerning temperature measurement using thermocouples and their calibration, creep testing test pieces with circumferential Vee and blunt (Bridgman) notches, estimation of measurement uncertainty and methods of extrapolation of creep rupture life.

NOTE Information is sought relating to the influence of off-axis loading or bending on the creep properties of various materials. Consideration will be given at the next revision of this International Standard as to whether the maximum amount of bending should be specified and an appropriate calibration procedure be recommended. The decision will need to be based on the availability of quantitative data ^[39].

Metallic materials — Uniaxial creep testing in tension — Method of test

1 Scope

This International Standard specifies the method for the uninterrupted and interrupted creep tests and defines the properties of metallic materials which can be determined from these tests, in particular the creep elongation and the time of creep rupture, at a specified temperature.

The stress rupture test is also covered by this International Standard, as is the testing of notched test pieces.

NOTE In stress rupture testing, elongation is not generally recorded during the test, only the time to failure under a given load, or to note that a predetermined time was exceeded under a given force.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 286-2, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts*

ISO 783 ¹⁾, *Metallic materials — Tensile testing at elevated temperature*

ISO 7500-2, *Metallic materials — Verification of static uniaxial testing machines — Part 2: Tension creep testing machines — Verification of the applied force*

ISO 9513, *Metallic materials — Calibration of extensometers used in uniaxial testing*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE Several different gauge lengths and reference lengths are specified in this International Standard. These lengths reflect custom and practice used in different laboratories throughout the world. In some cases, the lengths are physically marked on the test piece as lines or ridges; in other cases, the length may be a virtual length based upon calculations to determine an appropriate length to be used for the determination of creep elongation. For some test pieces, L_r , L_0 and L_g are the same length (see 3.1, 3.2 and 3.5).

1) To be revised by ISO 6892-2, *Metallic materials — Tensile testing — Part 2: Method of test at elevated temperature*.

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